

CLAIMS

- Article 34
- 5 1. Use of a calycin comprising a binding domain for binding at least one selected ligand and a targeting domain that binds to at least a part of a hair fibre and/or skin surface for targeting said ligand to said hair fibre and/or skin surface.
- 10 2. Use of claim 1 wherein the calycin further comprises an interaction domain which interacts with a such a domain on another calycin whereby they associate.
- 15 3. Use of claim 2 wherein the calycin is selected from a fusion protein and is a multimer.
4. Use of any of claims 1 to 3 wherein said binding domain and/or said targeting domain is endogenous to the calycin or calycin multimer.
- 20 5. Use of any of claims 1 to 3 wherein said binding domain and/or said targeting domain is adapted by alteration of the endogenous binding and/or targeting domain or by substitution of the endogenous binding and/or targeting domain for a domain that has the required functionality.
- 25 6. Use of any of claims 1 to 5 wherein said binding domain is adapted to bind more than one ligand.
7. Use of a claim 6 wherein the ligands bind to different respective binding domains found in different naturally occurring calycins.
- 30 8. Use of any of claims 1 to 7 wherein the or at least one calycin has the ability to bind fatty acids that coat hair cuticles and/or skin or protein moieties that comprise the cuticle and/or skin.

9. Use of any of the preceding claims wherein the or at least one calycin is β -lactoglobulin.
10. Use of any of claims 1 to 8 wherein the or at least one calycin is Major Urinary Protein and/or recombinant Major Urinary Protein.
11. A method for creating a calycin, optionally a calycin multimer, which is as defined in any of the preceding claims and is a mutant or fusion protein, wherein said method comprises the use of recombinant DNA techniques in the creation of the calycin mutant and fusion proteins.
12. A method according to claim 11 wherein the ligand binding domain and/or the targeting domain is genetically modified to alter the specificity of ligand binding and/or the affinity of the targeting domain for its binding site.
13. A method according to claim 11 and/or claim 12 wherein the calycin comprises a molecular complex with more than one type of ligand binding domain, wherein calycin genes are fused to one another and/or appropriate linking regions are used to produce a multi component gene and gene product and/or interaction sites are introduced into individual monomers of the calycins such that on mixing the individual proteins, molecules assemble into multi-sub unit complexes with similar or different functionalities.
14. A method according to claim 11 and/or claim 12 wherein said method comprises chemical methods in the crosslinking of calycin monomers to form multimeric complexes.
15. A method of claim 13 further comprising a method of claim 14.
16. A method of claim 14 or 15 wherein said chemical methods include the use of a bifunctional cross-linking agent.

17. A method of claim 16 wherein the cross-linking agent is 1-ethyl-3-[3-dimethylaminopropyl]carbodiimide hydrochloride (EDC).
- 5 18. A method of claims 11 to 17 to effect the cross-linking of β -Lactoglobulin and recombinant Major Urinary Protein.
19. Use of a hair or skin care composition comprising at least one calycin as defined in any of claims 1 to 10.
- 10 20. Use according to claim 19 wherein said composition provides a cosmetic or therapeutic effect.
21. Use according to claim 20 wherein the cosmetic effect involves the targeting of said calycin to hair to provide a conditioning effect and/or the targeting of perfume or hair dye to hair to provide at least one desired effect.
- 15 22. A calycin bound to a therapeutic agent for use as a medicament.
- 20 23. A calycin according to claim 22 wherein the medicament is a veterinary composition for use in the treatment of parasitic infection of animals and/or birds.
24. A calycin according to claim 22 wherein the calycin binds and transports an insecticide to hair and/or skin to prevent and/or cure infestation.
- 25 25. A method for the treatment of humans and/or animals and/or birds which involves the administration of a composition comprising a calycin to an individual and/or animal and/or bird to prevent and/or cure a condition affecting hair, fur, hide, feathers, scalp and skin.
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